

What is claimed is:

1. A centralizer comprising an annular body with a bore extending through the body and one or more blades, the centralizer being adapted to fit
5 around a tubular to be centralized, and comprising a tempered metal.
2. A centralizer as claimed in claim 1, wherein the centralizer is made substantially from a tempered metal.
- 10 3. A centralizer as claimed in claim 1, wherein the metal is ductile iron.
4. A centralizer as claimed in claim 1, wherein the tempered metal is austempered ductile iron.
- 15 5. A centralizer as claimed in claim 1, wherein the metal comprises at least one of 3.2-3.8wt% C and 2.2-2.8wt% Si.
6. A centralizer as claimed in claim 1, wherein the metal is alloyed
20 with at least one of Mo, Cu and Ni.
7. A centralizer as claimed in claim 1, wherein the metal is alloyed with at least one of Mg, Mn, Sn, Sb, P, S, O, Cr, Ti, V, Al, As, Bi, B, Cd, Pb, Se, Te, Be, Ca, Sr, Ba, Y, La, and Ce.
- 25 8. A centralizer as claimed in claim 1, wherein the blades are circumferentially distributed around the outer surface of the centralizer, each extending parallel to the bore of the centralizer.

9. A method for manufacturing a centralizer, the method comprising forming a centralizer from metal and tempering the metal centralizer.

10. A method as claimed in claim 9, wherein the centralizer comprises
5 an annular body with a bore extending through the body and one or more blades, the centralizer being adapted to fit around a tubular to be centralized, and comprising a tempered metal.

11. A method as claimed in claim 9, wherein the method comprises the
10 steps of heating a ductile iron centralizer to a first temperature at which austenite is formed; maintaining the centralizer at said temperature; and cooling the centralizer to room temperature.

12. A method as claimed in claim 11, wherein the method also includes
15 cooling the centralizer from the first temperature to a second temperature at which austempering may take place, before cooling the centralizer to said room temperature.

13. A method as claimed in claim 12, wherein the centralizer is
20 quenched from the first temperature to the second temperature.

14. A method as claimed in claim 11, wherein the centralizer is cooled
at a rate sufficient to combat the formation of ferrite and pearlite.

25 15. A method as claimed in claim 9, wherein at least some of the steps are performed in a sand casting mould.

16. A method as claimed in claim 15, wherein the blades of the
centralizer are formed between indentations in the mould and protrusions on a
30 blank set in the mould.

17. A method as claimed in claim 15, wherein the blade shapes are profiled to facilitate removal of the cast centralizer from the mould.

5 18. A method as claimed in claim 15, wherein the join between the two moulds is aligned with a blade of the centralizer.

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